

Work Order ID 63697

November 10, 2010 10:37:15 AM



Page 1

Item ID: D212-664-101TRN

Accept



Setup Start



Revision ID:

Item Name: Crosstube Turning Detail

Stop



Start Date: 11/10/10 Start Qty: 1.00



Cust Item ID:

Required Date: 11/19/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr	Revision Nbr
D212-664-141	Rev D

100



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Mori Seiki CNC Lathe Large

0.00

110



QC1- Inspect dimensions to dimension sheet

0.00

QC

Quality Control

120



MORI SEIKI CNC LATHE LARGE

0.00

Mori Seiki

Mori Seiki CNC Lathe Large

0.00

Memo

- 1-Turn second side as per Folio FA113
- 2-File down transition lines smooth.
- 3-Remove sand and plugs

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Quality Control

140

QC8- Inspect parts - second check

0.00



QC

Quality Control

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Hand Finishing Crosstubes

Memo

0.00

SL 10/11/15

BB 10/11/15

W/O:		WORK ORDER CHANGES					
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Work Order ID 63697

November 10, 2010 10:37:16 AM



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Cust Item ID:

Required Date: 11/19/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160



QC3- Inspect Part Finish

0.00

DP

10-11-15

QC

Memo

0.00

Quality Control

170



Packaging

0.00

DP

10-11-15



Packaging

Memo

0.00

Packaging

Identify and Stock in kanban rack
Location: x-tubes

180



QC21- Final Inspection - Work Order Release

0.00

CK 10/11/16 JJ

QC

Memo

0.00

Quality Control

MF 10-11-16

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

November 10, 2010 10:37:14 AM

Page 1

Work Order ID: 63697



Parent Item: D212-664-101TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 11/10/10

Required Date: 11/19/10

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 removed Polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128		Manufactured	No			120	Each	35.0000	1	1			

Crosstube Material



Location	Loc Qty	Loc Code
LG	35	
53593	5	
→ 57911	30	

✓ 10/10/10

W/O:		WORK ORDER CHANGES					
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
,								

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	63697
Description: Crosstube Assembly (205/212/412 High Fwd)	Part Number:	D212-664-141
Inspection Dwg: D212-664-141 Rev: D		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

First Article Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	200	/	Vern	ML-7
	R0.063	+/-0.010	R.063	/	Rad-gage	REF
	2.740	+0.005/-0.000	2.742	/	Vern	ML-7
	5.097	+/-0.030	5.097	/	"	"
	2.304	+0.005/-0.000	2.308	/	"	"
	2.340	+0.005/-0.000	2.345	-	"	"
	2.398	+0.005/-0.000	2.403	/	"	"
	2.448	+0.005/-0.000	2.453	/	"	"
	2.498	+0.005/-0.000	2.501	/	"	"
	2.549	+0.005/-0.000	2.554	/	"	"
	2.599	+0.005/-0.000	2.604	/	"	"
	2.671	+0.005/-0.000	2.675	/	"	"
	2.701	+0.005/-0.000	2.704	/	"	"
SIDE B	0.200	+/-0.010	200	/	"	"
	R0.063	+/-0.010	R.063	/	Rad-gage	REF
	2.740	+0.005/-0.000	2.740	/	Vernier	ML-7
	5.097	+/-0.030	5.100	/	"	"
	2.304	+0.005/-0.000	2.307	/	"	"
	2.340	+0.005/-0.000	2.343	/	"	"
	2.398	+0.005/-0.000	2.402	/	"	"
	2.448	+0.005/-0.000	2.452	/	"	"
	2.498	+0.005/-0.000	2.501	/	"	"
	2.549	+0.005/-0.000	2.554	/	"	"
	2.599	+0.005/-0.000	2.604	/	"	"
	2.671	+0.005/-0.000	2.674	/	"	"
	2.701	+0.005/-0.000	2.704	/	"	"
	126.514	+/-0.020	126.505	-	H-type	ML-5

Measured by:	<i>Amf</i>	Audited by:	<i>JL</i>	Prototype Approval:	N/A
Date:	10/11/12	Date:	10/11/15	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	
D	10.02.02	Dimension 126.514 was 126.51	KJ <i>[Signature]</i>	<i>M</i>

D

Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

WLB 63697

RELEASED

2009-10-29

M

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & BG-3); RELOCATED FLAG #6 PER PAR 09-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>PH</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. D212-664-141	
CHECKED	<i>PP</i>	REV. D SHEET 1 OF 4	
MFG. APPR.	<i>DS</i>	TITLE XTUBE ASS'Y (205/212/412 HI FWD) NTS	
APPROVED	<i>AD</i>	SCALE	
DE APPR.	<i>MM</i>	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY OTHER PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	09.09.30		

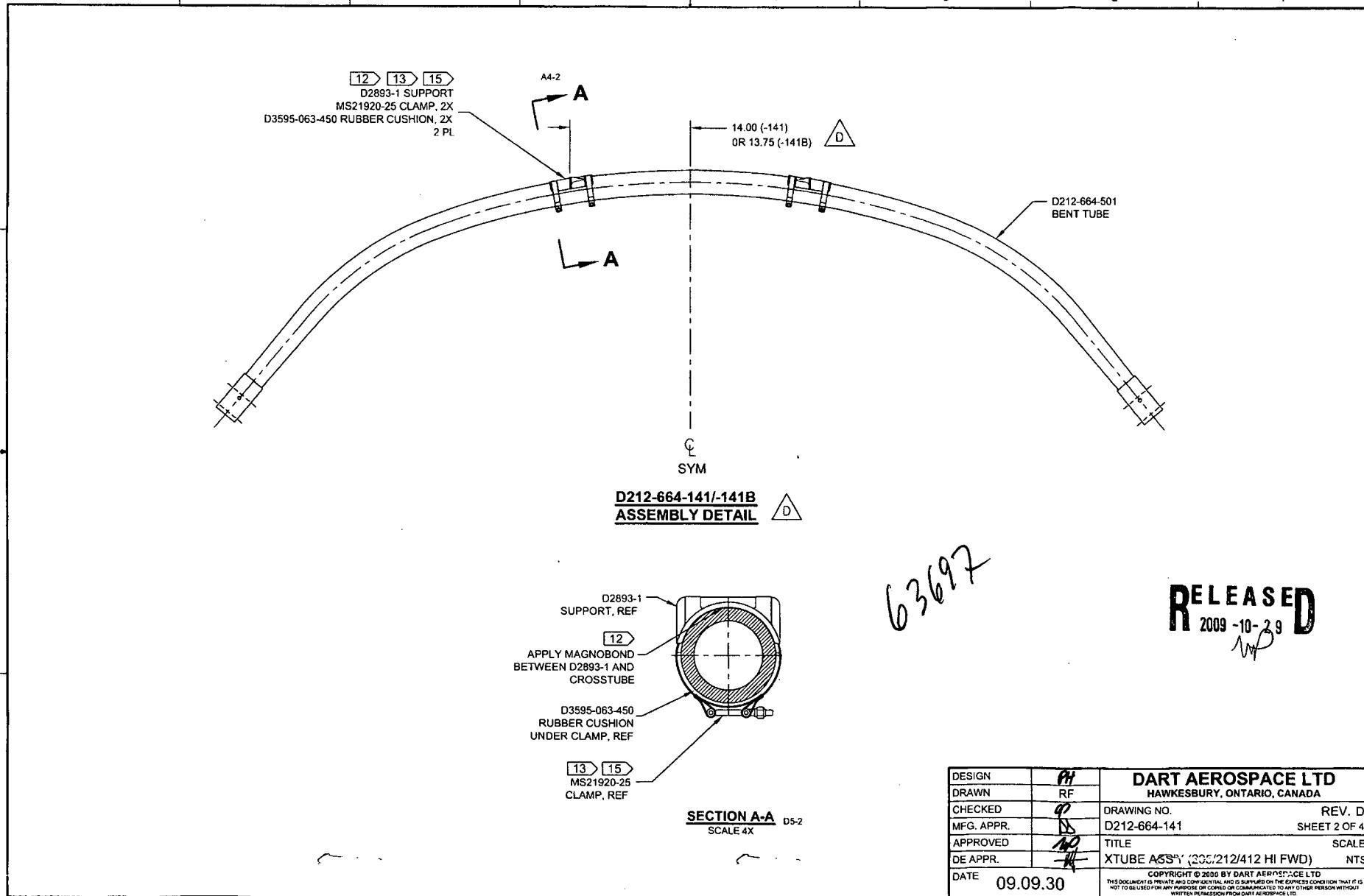
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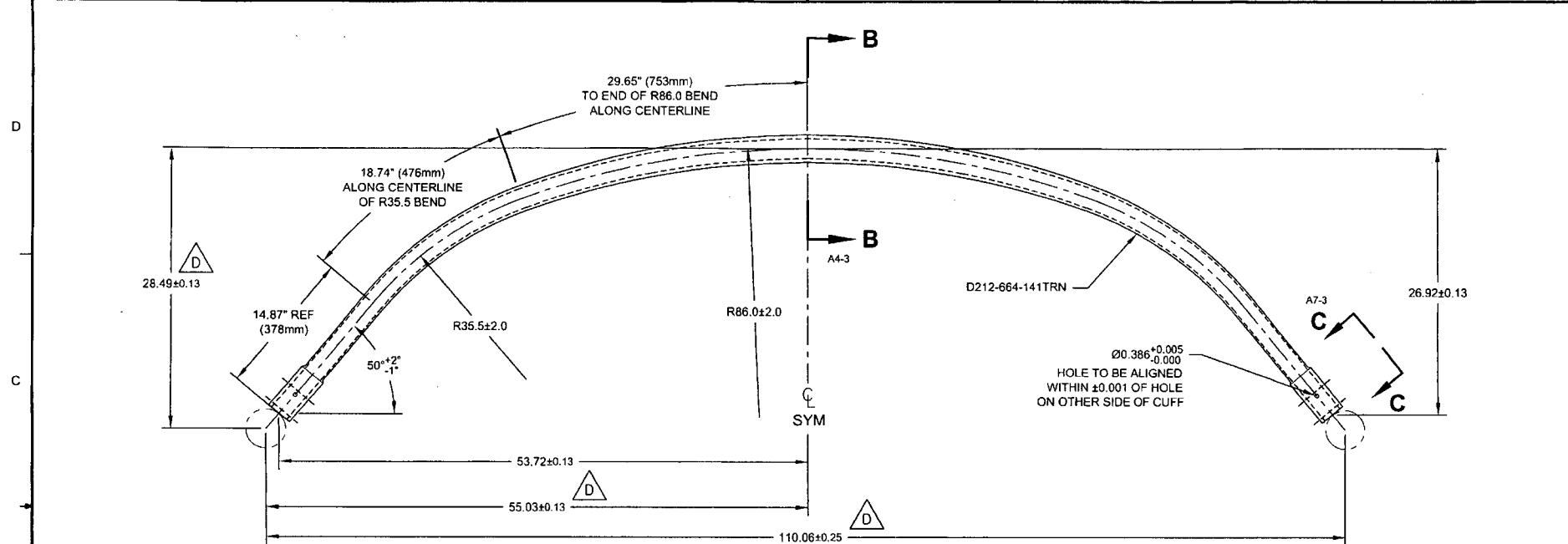
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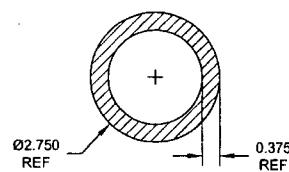
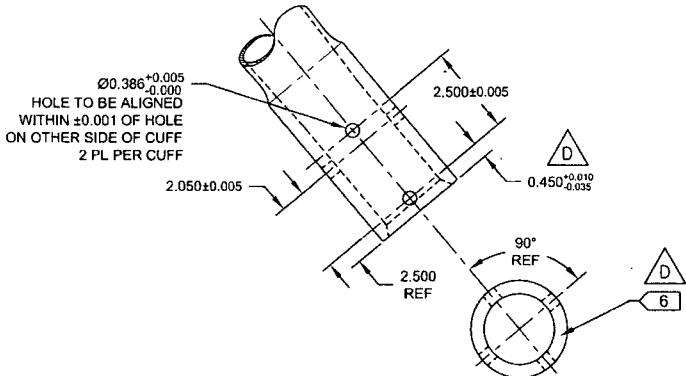
8 7 6 5 4 3 2 1



D212-664-501
BENDING AND DRILLING DETAIL [10] □ D

63697

RELEASED
2009-10-29
JW



SECTION B-B C4-3
SCALE 4X

VIEW C-C: CUFF DETAIL C2-3
SCALE 3X

DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	DRAWING NO.
CHECKED	PP	D212-664-141
MFG. APPR.	DS	REV. D SHEET 3 OF 4
APPROVED	AD	TITLE
DE APPR.	AD	SCALE
DATE	09.09.30	XTUBE ASS'Y (205/212/412 HI FWD)

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8 7 6 5 4 3 2 1

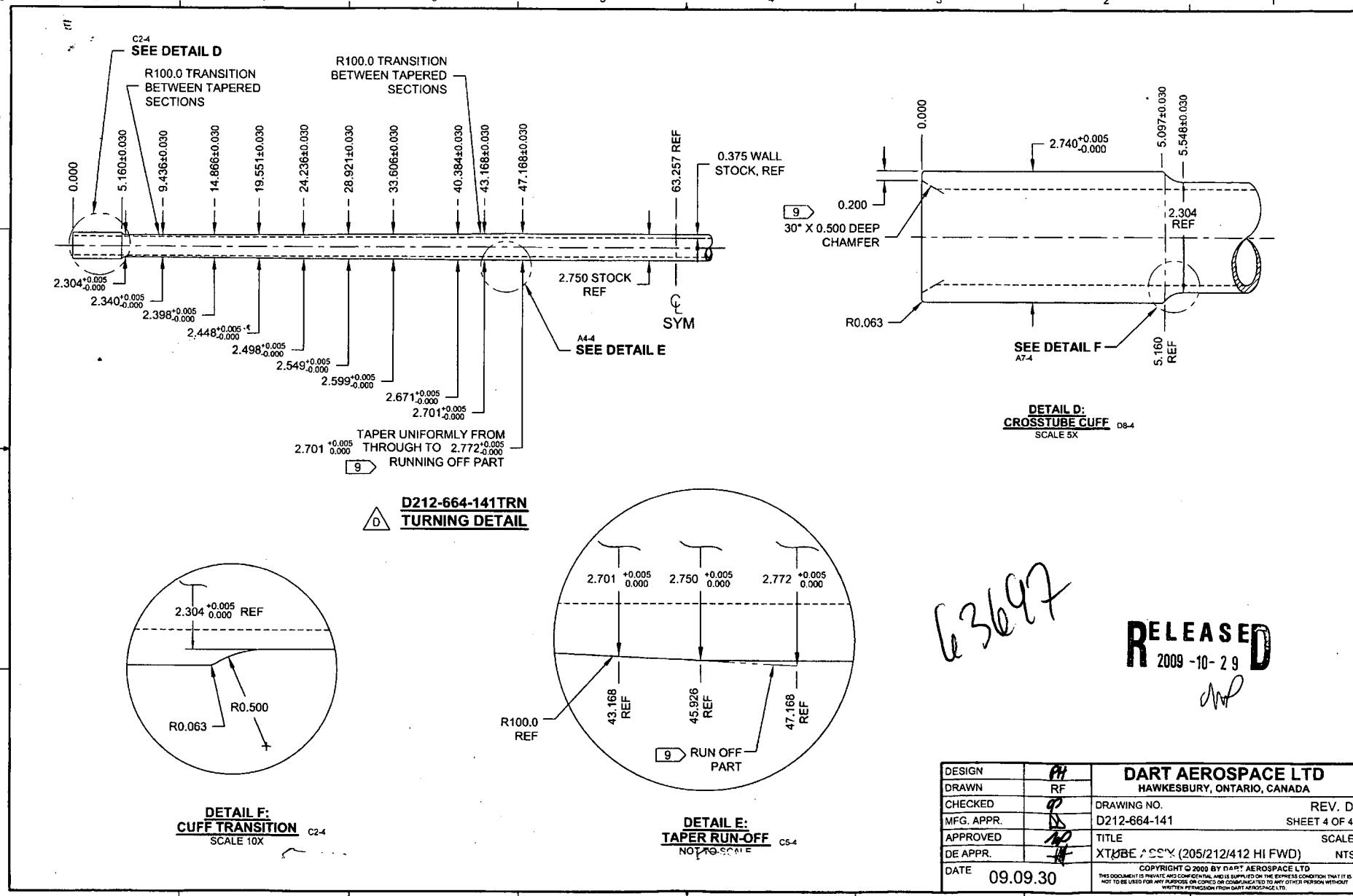
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DESIGN	<i>PH</i>	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	<i>90</i>	DRAWING NO.
MFG. APPR.	<i>DA</i>	REV. D
APPROVED	<i>NO</i>	SHEET 4 OF 4
DE APPR.	<i>NO</i>	TITLE
DATE	09.09.30	SCALE
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		NTS
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